

64576
Basaltic Impact Melt
6.92 grams



Figure 1: Photo of 64576. Scale in mm. S72-55364.

Introduction

64576 is a rake sample collected from the soil on the side of Stone Mountain. It has a fine-grained irregular basaltic texture with inclusions (figure 2). Skeletal olivine phenocrysts are set in a matrix of plagioclase laths, interstitial olivine and pigeonite with glassy mesostasis. Some olivine is reported to be magnesian (?).

Warner et al. (1973) gives the composition of pyroxene (figure 3) and Gooley et al. (1973) gives the composition of metal (Ni = 12%) and schreibersite in 64576.

Norman et al. (2006) have dated 64576 by Ar/Ar (figure 4).

References for 64576

- Butler P. (1972) Lunar Sample Information Catalog Apollo 16. Lunar Receiving Laboratory. MSC 03210 Curator's Catalog. pp. 370.
- Gooley R.C., Brett R. and Warner J.L. (1973) Crystallization history of metal particles in Apollo 16 rake samples. *Proc. 4th Lunar Sci. Conf.* 799-810.
- Korotev R.L. (1996c) On the relationship between the Apollo 16 ancient regolith breccias and feldspathic fragmental breccias, and the composition of the prebasin crust in the Central Highlands of the Moon. *Meteor. & Planet. Sci.* **31**, 403-412.
- LSPET (1973) The Apollo 16 lunar samples: Petrographic and chemical description. *Science* **179**, 23-34.
- LSPET (1972) Preliminary examination of lunar samples. Apollo 16 Preliminary Science Report. NASA SP-315, 7-1—7-58.
- Norman M.D., Duncan R.A. and Huard J.J. (2006) Identifying impact events within the lunar cataclysm from ^{40}Ar - ^{39}Ar ages and compositions of Apollo 16 impact melt rocks. *Geochim. Cosmochim. Acta* **70**, 6032-6049.

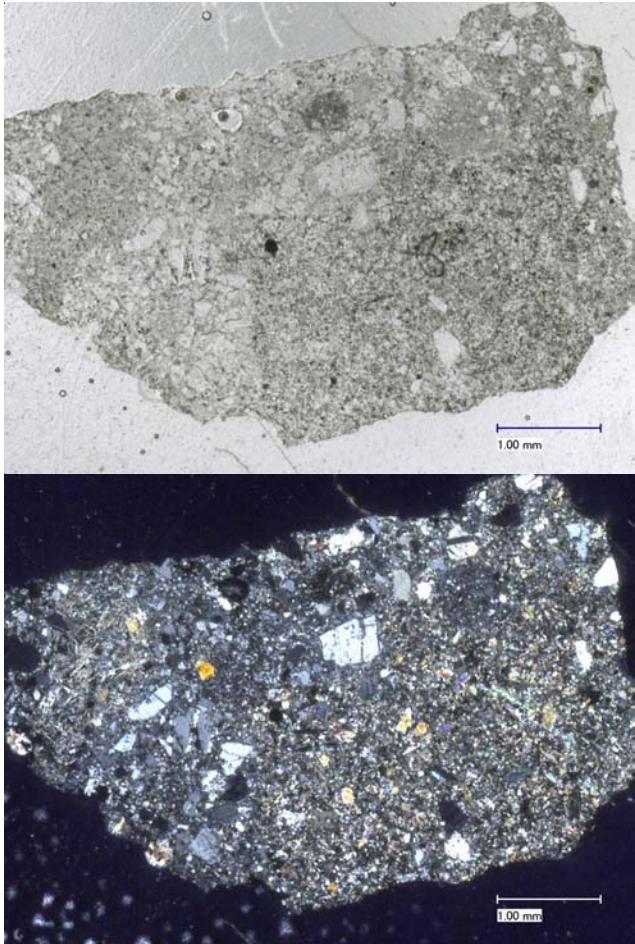


Figure 2: Photomicrographs of thin section 64576, by C Meyer @ 50x.

Pearce G.W. and Simonds C.H. (1974) Magnetic properties of Apollo 16 samples and implications for their mode of formation. *J. Geophys. Res.* **79**, 2953-2959.

Phinney W. and Lofgren G. (1973) Description, classification and inventory of Apollo 16 rake samples from stations 1, 4 and 13. Curators Office. JSC

Ryder G. and Norman M.D. (1980) Catalog of Apollo 16 rocks (3 vol.). Curator's Office pub. #52, JSC #16904

Stöffler D., Ostertag R., Reimold W.U., Borchardt R., Malley J. and Rehfeldt A. (1981) Distribution and provenance of lunar highland rock types at North Ray Crater, Apollo 16. *Proc. 12th Lunar Planet. Sci. Conf.* 185-207.

Stöffler D., Bischoff A., Borchardt R., Burghelle A., Deutsch A., Jessberger E.K., Ostertag R., Palme H., Spettel B., Reimold W.U., Wacker K. and Wanke H. (1985) Composition and evolution of the lunar crust in the Descartes highlands. *Proc. 15th Lunar Planet. Sci. Conf.* in *J. Geophys. Res.* **90**, C449-C506.

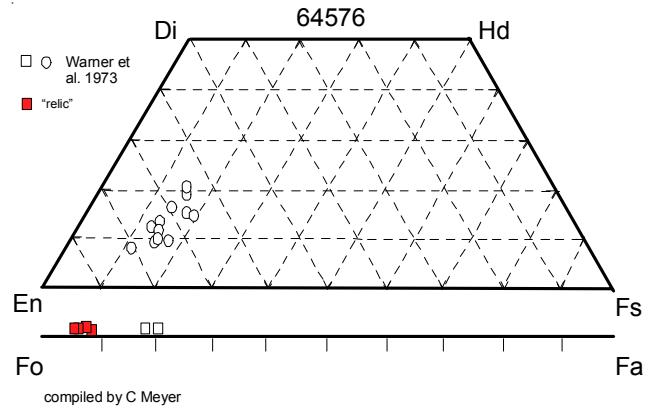


Figure 3: Composition of olivine and pyroxene in 64576 (Warner et al. 1973).

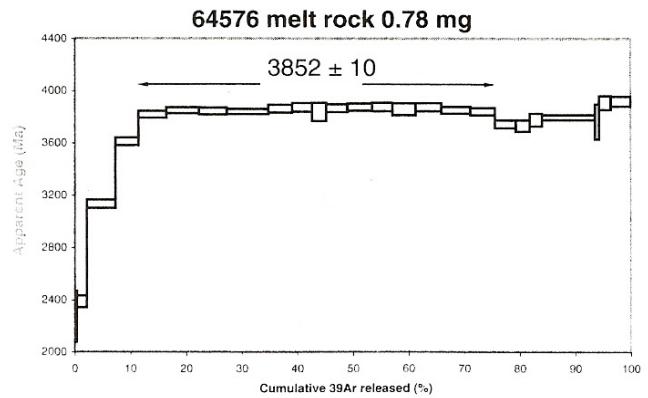
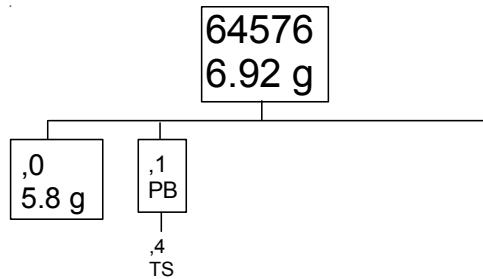


Figure 4: Ar/Ar plateau age for 64576 (Norman et al. 2006).



Sutton R.L. (1981) Documentation of Apollo 16 samples. In *Geology of the Apollo 16 area, central lunar highlands*. (Ulrich et al.) U.S.G.S. Prof. Paper 1048.

Warner J.L., Simonds C.H. and Phinney W.C. (1973b) Apollo 16 rocks: Classification and petrogenetic model. *Proc. 4th Lunar Sci. Conf.* 481-504.